- 1. A method for diagnosing a malignant neoplasm in a
 mammal, comprising contacting a bodily fluid from said
 mammal with an antibody which binds to an human aspartyl
 (asparaginyl) beta-hydroxylase (HAAH) polypeptide under
 conditions sufficient to form an antigen-antibody complex
 and detecting the antigen-antibody complex.
- 2. The method of claim 1, wherein said neoplasm is derived from endodermal tissue.
- 3. The method of claim 1, wherein said neoplasm is selected from the group consisting of colon cancer, breast cancer, pancreatic cancer, liver cancer, and cancer of the bile ducts.
- 4. The method of claim 1, wherein said neoplasm is a cancer of the central nervous system (CNS).
 - 5. The method of claim 1, wherein said bodily fluid is selected from the group consisting of a CNS-derived bodily fluid, blood, serum, urine, saliva, sputum, lung effusion, and ascites fluid.
- 1 6. The method of claim 1, wherein said antibody is a 2 monoclonal antibody.
- 7. The method of claim 6, wherein said monoclonal antibody is FB50.
- 1 8. The method of claim 6, wherein said monoclonal 2 antibody is selected from the group consisting of 5C7, 5E9, 3 19B, 48A, 74A, 78A, 86A.

1	9. A method for prognosis of a malignant neoplasm
2	of a mammal, comprising
3	(a) contacting a bodily fluid from said mammal
4	with an antibody which binds to an HAAH polypeptide under
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6 and detecting the antigen-antibody complex;

(b) quantitating the amount of complex to

8 determine the level of HAAH in said fluid; and

9 (c) comparing the level of HAAH in said fluid

10 with a normal control level of HAAH, wherein increasing

11 levels of HAAH over time indicates an adverse prognosis.

- 1 10. A method of inhibiting tumor growth in a mammal 2 comprising administering to said mammal a compound which 3 inhibits expression of HAAH.
- 1 11. The method of claim 10, wherein said compound is 2 a HAAH antisense nucleic acid.
- 1 12. The method of claim 10, wherein said compound 2 is a ribozyme.
- 1 13. The method of claim 10, wherein said tumor is 2 derived from endodermal tissue.
- 1 14. The method of claim 10, wherein said tumor is 2 selected from the group consisting of colon cancer, breast 3 cancer, pancreatic cancer, liver cancer, and cancer of the 4 bile ducts.
- 1 15. The method of claim 10, wherein said tumor is a 2 CNS tumor.

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L	16. A method of inhibiting tumor growth in a mammal
2	comprising administering to said mammal a compound which
3	inhibits an enzymatic activity of HAAH. 7 mly 1

- 1 17. The method of claim 16, wherein said enzymatic 2 activity is hydroxylase activity.
- 1 18. The method of claim 16, wherein said compound 2 is a dominant negative mutant of HAAH.
- 1 19. The method of claim 18, wherein said dominant 2 negative mutant HAAN comprises a mutation in a catalytic 3 domain of HAAH.
- 1 20. The method of claim 16, wherein said compound 2 is an HAAH-specific intrabody.
- 1 21. The method of claim 16, wherein said compound 2 is L-mimosine.
 - 22. The method of claim 16, wherein said compound is a hydroxypyridone.
- 23. A method of inhibiting tumor growth in a mammal comprising administering to said mammal a compound which inhibits signal transduction through the IRS signal transduction pathway.
- 1 24. The method of claim 23, wherein said compound 2 inhibits IRS phosphorylation.
- 1 25. The method of claim 23, wherein said compound 2 inhibits binding of Fos or Jun to an HAAH promoter sequence.

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- 26. A method of inhibiting tumor growth in a mammal comprising administering to said mammal a compound which inhibits HAAH hydroxylation of a NOTCH polypeptide.
- 27. The method of claim 26, wherein said compound inhibits hydroxylation of an EGF-like repeat sequence in a NOTCH polypeptide.
- 28. A method of killing a tymor cell comprising
 contacting said tumor cell with cytotoxic agent linked to an
 HAAH-specific antibody.
- 29. A monoclonal antibody that binds to an epitope 2 of HAAH.
- 1 30. The antibody of claim 29, wherein said epitope 2 is within a catalytic site of HAAH.
 - 31. The antibody of claim 29, wherein said monoclonal antibody is selected from the group consisting of 5C7, 5E9, 19B, 48A, 74A, 78A, 86A.
- 1 32. The antibody of claim 29, wherein said 2 monoclonal antibody is selected from the group consisting of 3 HA238A, HA221, HA239, HA241, HA329, or HA355.
- 33. A composition comprising a monoclonal antibody that binds to an epitope of HAAH linked to a cytotoxic agent, wherein said composition preferentially kills tumor cells compared to non-tumor cells.
- 1 34. A kit for diagnosis of a tumor in a mammal, 2 comprising the antibody of claim 29.

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1	35.	The	kit	of	claim 34,	wherein	said	antibody	is
2	immobilized							_	

- 1 36. The kit of claim 25, wherein said solid phase 2 is selected from a group consisting of an assay plate, an 3 assay well, a nitrocellulose membrane, a bead, a dipstick, 4 and a component of an elution column.
 - 37. A method of determining whether a candidate compound inhibits HAAH enzymatic activity, comprising
 - (a) providing A HAAH polypeptide;
 - (b) providing a polypeptide comprising an EGF-like domain;
 - (c) contacting said HAAH polypeptide or said NOTCH polypeptide with said candidate compound;
 - (d) determining hydroxylation of said polypeptide of step (b), wherein a decrease in hydroxylation in the presence of said candidate compound compared to that in the absence of said compound indicates that said compound inhibits HAAH enzymatic activity.
 - 38. A method of determining whether a candidate compound inhibits HAAH activation of NOTCH, comprising
 - (a) providing a cell expressing HAAH;
- 4 (b) contacting said cell with a candidate compound; 5 and
- (c) measuring translocation of activated NOTCH to
 the nucleus of said cell, wherein a decrease in
 translocation in the presence of said compound compared to
 that in the absence of said compound indicates that said

10 compound HAAH activation of NOTCH.

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